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KANG, INSUN				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary

Application No.

10/672,288

Applicant(s)

BINDEWALD ET AL.

Examiner

INSUN KANG

Art Unit

2193

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7-11, 14-18 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-11, 14-18, and 21-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to the RCE amendment filed on 11/10/2008.
2. Claims 1-4, 7-11, 14-18, and 21-23 are pending in the application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 7-11, 14-18, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter referred to as "APA") disclosed in the instant application, in view of Kullick et al. (US Patent 5,732,275) hereafter Kullick, and further in view of Ayres et al. (US Patent 6,389,592) hereafter Ayres.

Per claim 7:

APA discloses:

- downloading at a remote site, an application to run as a remote application on a virtual machine located on the remote site (i.e. see Fig. 1 which demonstrates the prior art remote debugging environment; page 3, lines 8-14; fig. 2, JPDA).

APA does not explicitly teach that the virtual machine is run in a debug mode to enable the application to attach to the virtual machine. However, Sun's JPDA is known to allow Java processes to be run in a debug mode so that a debugger can be attached to the system to debug the Java processes. Therefore, it would have been obvious for one having ordinary

skill in the art to modify APA's disclosed system to run the program in a debug mode to debug any modified code.

APA does not explicitly teach modifying the remote application at the remote site to generate a modified remote application. However, the application 250 in the prior art Fig. 2 can be modified if needed at the remote site. Therefore, it would have been obvious for one having ordinary skill in the art to modify APA's disclosed system to modify the application located at the remote site for an update.

APA further discloses:

- requesting, from the remote site, a local site to run a debugging system on the modified remote application running on the remote site (i.e. Fig. 2; page 4 lines 5-10)
- run the debugging system on the local site, the local site being separated from the remote site (i.e. Fig. 1-2, the debugger located on the local site).
- establishing a communication link between a first router located on the local site and a second router located on the remote site and use the communication link between the first and second routers to establish communication between the debugging system and the virtual machine (i.e. Fig. 1-2, which shows the two separate routers; "Establishing a communication link between the routers 261, 262 (and therefore through both firewalls 281, 282) is known in the art," page 5, lines 17-19).

APA does not explicitly teach receiving a timestamp indicating when the remote application was last modified. However, Kullick teaches using a timestamp for a version control was known in the pertinent art, at the time applicant's invention was made, to readily determine version information (col. 6 lines 5-9). It would have been obvious for one having ordinary skill

in the art to modify APA's disclosed system to incorporate the teachings of Kullick. The modification would be obvious because one having ordinary skill in the art would be motivated to determine the version information of a program as suggested by Kullick (col. 6 lines 5-9).

Kullick further discloses: determine, based on receiving the timestamp, whether a local copy of the remote application is present on the local site wherein the local copy is provided as source code (i.e. "the subroutine checks whether a version of the program is currently stored in a designated portion of the server memory," col. 5 lines 55-60).

APA and Kullick do not explicitly teach retrieving, if it is determined that the local copy is not present on the local site, the local copy from the remote site. However, it would have been obvious for one having ordinary skill in the art to modify the system of APA and Kullick to obtain the stored application located at the remote site for remote debugging through the established communication links.

Kullick further discloses:

- determine, based on receiving the timestamp, whether more than one local copy is stored on the local site (i.e. "determines whether multiple versions of the application are resident," col. 4 lines 1-5);
- select a matching local copy from the more than one local copy based on the received timestamp (i.e. "determine whether an upgrade version is present," col. 4 lines 1-10)
- determine whether the local copy is up to date with respect to the remote application based on the received timestamp, if it is determined that the local copy is not up to date (i.e. "If a determination is made...newer than the most recent version on the client computer, the new version is copied to the memory...of the client," col. 6 lines 10-17).

Kullick does not explicitly further teach determining delta information that identifies differences between the local copy as original downloaded with the remote application and the modified remote application. However, Ayres teaches determining such delta information was known in the pertinent art, at the time applicant's invention was made, to reduce data transfer amount by avoiding redundant data using a delta file (i.e. col. 3 lines 1-5). It would have been obvious for one having ordinary skill in the art to modify the system of APA and Kullick to incorporate the teachings of Ayres. The modification would be obvious because one having ordinary skill in the art would be motivated to download or transfer only changed code portions to reduce the transmission of duplicate data as suggested by Ayres (i.e. col. 3 lines 1-5).

Ayres further discloses: retrieve the delta information from the remote site; use the retrieved delta information to alter the local copy to match the modified remote application and to provide an altered copy (i.e. col. 1 lines 45-58).

Kullick further discloses establishing an identification mark for the altered copy which identification mark is stored in the altered copy (i.e. col. 6 lines 10-17).

APA teaches loading the altered copy as an altered local copy into a debugger and debugging the program by the debugger using the communication link between the first and second routers (i.e. fig 2; page 5, lines 17-19). APA, Kullick, and Ayres do not explicitly teach load the retrieved, matched, or altered local copy into the debugging system and debug, using the using the communication link between the first and second routers, the altered local copy of the remote application at the local site. However, it would have been obvious for one having

ordinary skill in the art to modify the system of APA, Kullick, and Ayres to load the retrieved, matched or altered copy taught by Kullick and Ayres into the debugger in APA for debugging the retrieved, matched or altered copy to detect any errors.

APA further discloses: sending commands from the local site to the remote application between the first and second routers, and receiving, via the first and second routers, run-time data and state information about the remote application at the local site based on sending the commands (i.e. Fig. 2, JDWP, JVMDI).

Per claim 8:

APA does not explicitly teach that the remote application 250 is a component of a larger application that is running on the virtual machine. However, a program can be deployed in any form including as a component, therefore, it would have been obvious for one having ordinary skill in the art to modify the system of APA to include an application to be deployed as a component for modularity.

Per claim 9:

APA further teaches:

- the virtual machine is a Java virtual machine (i.e. Fig. 2, JPDA).

Per claim 10:

APA further teaches:

- the at least one firewall comprises a first firewall protecting the local site and a second firewall protecting the remote site (Fig. 1, 2).

Per claim 11:

APA further teaches:

-at least one of the first and second routers is a SAProuter ("SAProuter available from SAP AG," page 3, line 15).

Per claims 1-4, they are the method versions of claims 7-10, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 7-10 above.

Per claim 21:

APA further teaches:

-changing a run mode of the modified remote application from a normal mode to a debugging mode (i.e. fig. 2, JVMDI where the target VM needs to run in debug mode for debugging; page 4, lines 1-5, 21-22).

Per claim 22:

APA further teaches:

Communication between the debugging system and the virtual machine is established with the modified remote application remaining in a normal mode, and not a debugging mode (i.e. Fig. 2, the application 250 runs in a normal run mode; page 3, 18-19).

Per claim 23:

APA further teaches:

The communication link is established using shared memory (i.e. Fig. 2, JPDW; page 4, line 31, "shared memory").

Per claims 14-18, they are the system versions of claims 7-11, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 7-11 above.

Response to Arguments

5. Applicant's arguments filed on 11/10/2008 have been fully considered but they are not persuasive.
6. The applicant states that at least one or more of the above-identified features is not capable of instant and unquestionable demonstration, none of the asserted references describe these features (remark, 10).

In response, the JPDA system shown in Fig. 2 is known in the art (Fig. 2; EP1071016). The instant invention is related to remote debugging through firewalls using JPDA. The specification recites that while the conventional remote debugging does not work when the programs are separated by a firewall, the invention enables remote debugging through firewalls by establishing communication between the routers on each side of the firewalls (page 1). However, the instant specification does not describe that such establishment of communication is performed in an unconventional way to enable the debugging. Moreover, in the specification, lines 17-22, it is recited that "Establishing a communication link between the routers 261, 262 (and therefore through both firewalls 281, 282) is known in the art." Therefore, it is considered

that remote debugging through firewalls using JPDA is possible by simply establishing a communication link between routers.

The applicant further states that the cited arts do not disclose downloading at a remote site an application to run as a remote application...which virtual machine is run in a debug mode to enable the application to attach to the virtual machine, the local copy is provided as source code, and establishing an identification mark for the altered copy which identification mark is stored in the altered copy (remark 11).

In response, Sun's JPDA as presented in APA is known to enable running Java processes in a debug mode so that a debugger can be attached to the system to debug the Java processes. The source code in APA is provided for debugging. Furthermore, the instant specification states that the identification mark can be a timestamp associated with a source code (see page 5). Kullick discloses such a timestamp associated each version of source code (i.e. col. 6 lines 5-10).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to INSUN KANG whose telephone number is (571)272-3724. The examiner can normally be reached on M-R 7:30-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis A. Bullock, Jr. can be reached on 571-272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available

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through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Insun Kang/
Examiner, Art Unit 2193